

**Supplement 1.** Survey instrument for importance of factors involved in making empiric antibiotic prescribing decisions.

### **Survey Document**

This is a survey research study being conducted by investigators at the University of Pennsylvania. The purpose of this survey is to better understand how clinicians make empiric decisions about antimicrobials. We will use these data to inform the design of clinical decision support tools.

Your participation in this study is completely voluntary and your decision of whether or not to participate will have absolutely no impact on your employment status. No personally identifying information will be gathered. Your responses will be anonymous (de-identified) and will only be seen individually by study investigators. Responses will be aggregated in publications and presentations. All data will be stored on a secure server.

The survey should take approximately 5 minutes to complete. Please take the survey only once. You may stop the study at any time without penalty to you.

If you have any questions, please contact the principal investigator.

Completing this survey will serve as your consent to take part in this research study.

1. What is your age? \_\_\_\_\_ years old
2. What is your gender?
  - a. Male
  - b. Female
  - c. Transgender
  - d. Other: \_\_\_\_\_
  - e. Prefer Not to Say
3. Please select your occupational role
  - a. Attending Physician
  - b. Fellow Physician
  - c. Resident Physician
  - d. Nurse Practitioner
  - e. Physician Assistant
  - f. Other: \_\_\_\_\_
4. If you selected Attending Physician, Nurse Practitioner, or Physician Assistant, how long has it been since you completed your training?
  - a. 0-1 years
  - b. 2-5 years
  - c. 6-10 years
  - d. 11-20 years

- e. 21-30 years
  - f. 31+ years
5. What best describes your specialty? Please select all that apply
- a. Anesthesia
  - b. Critical Care
  - c. Dermatology
  - d. Emergency Medicine
  - e. Family Medicine
  - f. Internal Medicine or Internal Medicine Subspecialty
  - g. Neurology
  - h. OB/GYN
  - i. Pediatrics or Pediatric Subspecialty
  - j. Surgery or Surgery Subspecialty
  - k. Other: \_\_\_\_\_
6. In what area of healthcare, do you spend a majority of clinical time?
- a. Critical Care/ Intensive Care Unit (Inpatient)
  - b. Non Intensive Care Unit (Inpatient)
  - c. Ambulatory / Outpatient

You will be presented with **three clinical scenarios**. For each scenario, imagine you are a clinician in the following setting. Assume that you have already ordered the appropriate diagnostic testing but need to order an antibiotic prior to test results. Evaluate how important having each factor at your disposal is when making this empiric antibiotic decision from extremely important (5) to not at all important (1). **List of Factors** (will be included in each question):

1. Relevant comorbidities (pregnancy, creatinine clearance, presence of urinary tract abnormalities, aspiration, unspecified lung disease, gallstones, liver disease, etc.)
2. Recent or current indwelling devices (urinary or venous catheters, ventilators)
3. Immunosuppressive condition(s) (transplant, HIV/AIDS, neutropenia, etc.) and medication(s) (chemotherapy, steroids, etc.)
4. Previous infection diagnoses
5. Prior antibiotic use (medications and dates)
6. Prior microbiology lab results and susceptibilities
7. Patient allergies
8. Local resistance patterns
9. Risk of adverse outcomes related to antibiotics that may be selected (risk of organ toxicity, risk of C. difficile infection, etc.)
10. Admission to healthcare facility (acute care hospitals, nursing homes, dialysis, etc.) and surgical procedures
11. Pertinent drug-drug interactions with antibiotics that may be selected
12. Local and/or national guidelines for antibiotic use

**Scenario 1:** A patient presents with urinary frequency and dysuria. The patient has normal vital signs.

	Not at all important	Slightly Important	Moderately Important	Very Important	Extremely Important
Relevant comorbidities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recent indwelling devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immunosuppressive condition(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Previous infection diagnoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior antibiotic use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior micro results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient allergies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local resistance patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk of toxicity and C. Difficile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Healthcare/Surgical Exposure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drug-drug interactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Scenario 2:** A patient presents with septic shock of unknown etiology

	Not at all important	Slightly Important	Moderately Important	Very Important	Extremely Important
Relevant comorbidities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recent indwelling devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immunosuppressive condition(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Previous infection diagnoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior antibiotic use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior micro results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient allergies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local resistance patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Risk of toxicity and C. Difficile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Healthcare/Surgical Exposure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drug-drug interactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Scenario 3:** A patient presents with fever and cough found to have a community-acquired lobar pneumonia on chest X-ray. The patient has a fever of 102°F, but other vital signs are within normal range

	Not at all important	Slightly Important	Moderately Important	Very Important	Extremely Important
Relevant comorbidities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recent indwelling devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immunosuppressive condition(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Previous infection diagnoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior antibiotic use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior micro results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient allergies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local resistance patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk of toxicity and C. Difficile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Healthcare/Surgical Exposure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drug-drug interactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments about making empiric antibiotic prescribing decisions?